

Serial No. 10/544,226
Amendment Dated: December 3, 2009
Reply to Office Action Mailed: August 3, 2009
Attorney Docket No. 056226.56477US

Amendments to the Claims:

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1.-11. (Cancelled)

Claim 12. (Currently Amended) A deformable aerodynamic profiled member comprising:

a front profile area;

a rear profile area;

shells which bound the profiled member on a pressure side and on a suction side, which shells converge in a rear profile edge; and

deforming means for varying a curvature of said profiled member by changing length of at least one of said shells in a desired direction; wherein,

~~d33 piezo actuators for deforming the profiled member;~~

said deforming means comprises at least one d33 piezo actuator mounted on said at least one shell; and

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wherein said at least one piezo actuators are actuator is arranged on said profiled member at least one shell with an orientation such that a change of their length of said at least one piezo actuator cause a change of length in a plane changes substantially in the direction of the planes of said at least one shell in said desired direction, and a corresponding deformation of said profile, the shells, when said at least one actuator is actuators are acted upon by electricity.

Claim 13. (Currently Amended) The deformable aerodynamic profiled member according to Claim 12, wherein the d33 piezo actuators are arranged on ~~at least one of the shells, on~~ at least one of the pressure side and the suction side.

Claim 14. (Previously Presented) The deformable aerodynamic profiled member according to Claim 12, wherein the d33 piezo actuators are integrated into at least one of the shells, on at least one of the pressure side and the suction side.

Claim 15. (Previously Presented) The deformable aerodynamic profiled member according to Claim 14, wherein the at least one shell has a composite structure.

Claims 16-21. (Cancelled)

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Claim 22. (Previously Presented) The deformable aerodynamic profiled member according to Claim 12, wherein the aerodynamic profile is one of a helicopter rotor blade, an aircraft wing, a turbine blade or the like.

Claim 23. (Previously Presented) The deformable aerodynamic profiled member according to Claim 12, wherein:

the piezo actuator comprises alternating lamina of d33 piezoelectric material and electrically conducting material, arranged in a stacking direction; and

the piezo actuators are oriented relative to said profiled member with the stacking direction coinciding substantially with a desired expansion direction of said profiled member.

Claim 24. (Currently Amended) The deformable profiled member according to Claim 12, wherein said piezo actuators comprise d33 piezo actuators which comprise stack-form piezoelectric elements cut lengthwise, in a plane parallel to said expansion.

Claim 25. (Previously Presented) The deformable aerodynamic profiled member according to Claim 12, wherein each of the d33 piezo actuators comprises a stack of alternating layers of piezoelectric materials and electrode layers formed of an electrically conducting material.

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Claim 26. (Previously Presented) The deformable aerodynamic profiled member according to Claim 25, wherein an electric field for inducing the d33 effect is supplied via the electrode layers.

Claim 27. (Previously Presented) The deformable aerodynamic profiled member according to Claim 25, wherein the laminar d33 piezo actuators have a thickness of approximately 0.5 to 2.5 mm.

Claim 28. (Previously Presented) The deformable aerodynamic profiled member according to Claim 27, wherein the laminar d33 piezo actuators have side edge dimensions of approximately 5 to 60 mm.